

the above-described method and advantageous results. These Examples are shown by way of illustration and not by way of limitation.

EXAMPLE 1

5 A 44 year old woman is diagnosed with metastatic breast cancer and seeks the recommendation of her physician regarding future treatment. The physician draws a peripheral blood specimen from the woman, and evaluates her plasma for the presence of her-2/neu RNA using the methods of the invention. Her-2/neu RNA is demonstrated in the woman's plasma, thereby selecting the woman for a her-2/neu directed therapy. The woman is treated with a
10 monoclonal antibody that binds with the extracellular domain of her-2/neu, and additionally is treated with a cytotoxic chemotherapeutic agent such as a taxane that is known to be synergistic with the monoclonal antibody. The woman's response to therapy is consequently determined by serially monitoring in a quantitative fashion levels of her-2/neu RNA in the women's plasma or serum.
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EXAMPLE 2

A 56 year old man is being evaluated for his best treatment option after being diagnosed with colorectal cancer. Serum is obtained from the man's peripheral blood and is quantitatively evaluated for the level of EGFr RNA in the serum using the methods of the invention. It is
20 thereby demonstrated that the man has higher levels of EGFr RNA in his blood than would be normally expected, and he is consequently treated with a monoclonal antibody that binds to the extracellular domain of the epidermal growth factor receptor. His response to therapy is

monitored through serial determinations of the quantitative levels of EGFr RNA in his plasma or serum.

EXAMPLE 3

5 A 60 year old man with a long history of smoking presents to his family physician with a complaint of increasing shortness of breath. The physician obtains a chest x-ray that demonstrates a large pleural effusion. The physician subsequently inserts a needle into the pleural space thereby aspirating pleural fluid, which he further evaluates for the presence of tumor cells and for extracellular tumor-associated RNA. Cytology is performed on the fluid but
10 no tumor cells are diagnosed. The fluid is further centrifuged, and the non-cellular component of the pleural fluid is analyzed in multiplexed fashion using the methods of the invention for extracellular her-2/neu RNA, hnRNP A2/B1 RNA, c-myc RNA, and additionally the telomerase RNA hTERT and mutant K-ras DNA. The pleural fluid demonstrates the presence of her-2/neu RNA, hnRNP A2/B1 RNA, and hTERT RNA. The presence of said RNA in the man's pleural
15 fluid strongly supports the diagnosis of a neoplastic disease of the lung. The man subsequently undergoes further radiologic evaluation including magnetic resonance imaging (MRI) and bronchoscopy with biopsy, thereby confirming the diagnosis of lung cancer. The man is treated by surgical resection, followed by treatment with a her-2/neu directed monoclonal antibody in combination with cytotoxic chemotherapy and radiotherapy.

20 While various embodiments of the present invention have been described in detail, it is apparent that modifications and adaptations of those embodiments will occur to those skilled in the art. It is to be expressly understood, however, that such modifications and adaptations are within the scope of the present invention, as set forth in the following claims.